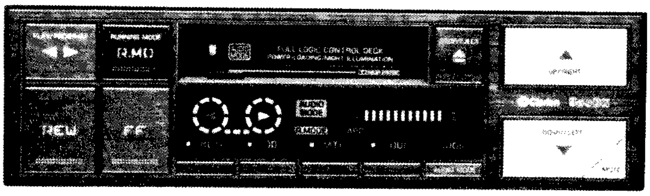
Clarion Co., Ltd.
Export Division—22-3, Shibuya 2-chome, Shibuya-ku, Tokyo, 150 Japan
Tel: 03-400-1121 Fax: 03-400-8679 Telex: J22908, J22152
Service Dept.—50 Kamitoda, Toda-shi, Saitama, 335 Japan Tel: 0484-43-1111 Telex: J2962628 CLAFAC-J

Clarion

Service Manual



Model 900DX (GD-827E)

■SPECIFICATIONS:

Reproduction system:	4 track, 2 channel stereo cassette tape playback
Tape speed:	4.76cm/sec.
Power supply voltage:	DC 14.4V Negative ground
Current consumption:	600mA
Dimensions:	Width 178mm Height 50mm Depth 130mm
Weight:	1.3kg

⊙ Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
⊙ Noise Reduction System manufactured under license from Dolby Laboratories Licensing Corporation.

■COMPONENTS:

●GD-827E-51

Main unit		
Mounting bracket	300-7110-02	1
Parts bag	921-8208-00	
Hook plate	330-7673-00	2
Machine screw	714-4008-40	4
Spring	750-2574-00	2
Parts bag	922-1460-00	
Escutcheon	370-3960-00	1

■FEATURES:

- ●Full Logic Control Operation.
- ●Multi-Play (Running mode & Audio mode).
- ●Running mode (APC, SCAN, REPEAT).
- ●Audio mode (VOL, BASS, TREB, BAL).
- ●Operational Illumination.
- ●Power-Loading Tape Mechanism.
- ●Concentrated Color Display.

■ADJUSTMENT:

⟨TAPE MECHANISM⟩

1. Head-azimuth Adjustment

Make playback for the azimuth-tape (8kHz, −10VU), and turn each azimuth-adjusting screw to make each FWD & REV maximum. After adjustment, make adhesion with bond.

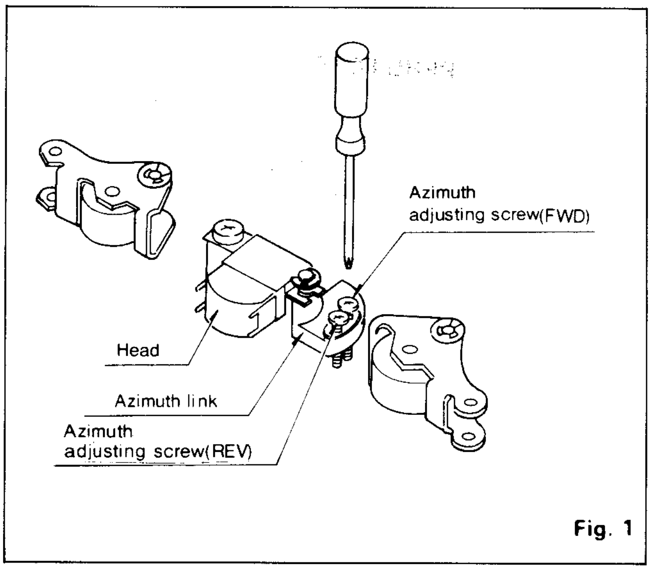

Azimuth adjusting screw(FWD)
Head
Azimuth link
Azimuth adjusting screw(REV)

Fig. 1

2. Adjustment of Adsorption Plunger B

Under FF-operation, when adsorption plunger is released, mount the plunger to make the adsorption-surface of adsorption plunger B in parallel to the bent surface of plunger link B, and make adhesion of the rear side of the screw with bond.

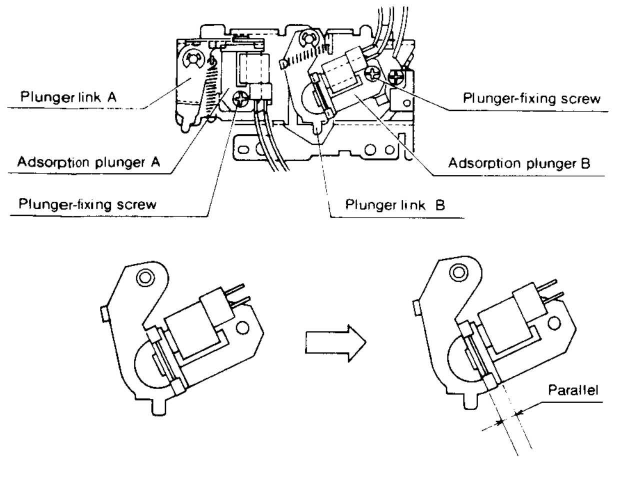

Plunger link A
Plunger-fixing screw
Adsorption plunger A
Adsorption plunger B
Plunger-fixing screw
Plunger link B
Parallel

Fig. 2

3. Adjustment of Adsorption Plunger A

Under REW-operation, when adsorption plunger is released, mount the plunger to make the adsorption-surface of adsorption plunger A in parallel to the bent surface of plunger link A, and make adhesion of the rear side of the screw with bond.

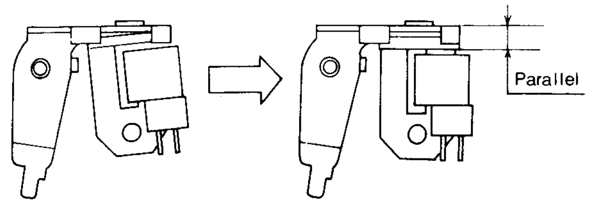


Fig. 3

⟨DOLBY NR⟩

Insert a Dolby NR level test tape(400Hz, 200nwb/m), connect the millivoltmeter to TP101 and TP201, and adjust VR101 and VR201 to obtain an output of 300mV±1dB. (Dolby NR SW : OFF)

- SPECIFICATION—LIMIT—Wow & flutter : Less than 0.15% (W.R.M.S.)

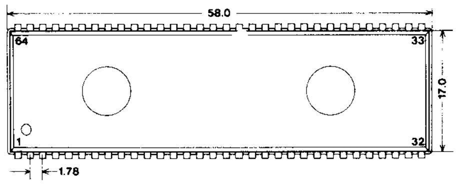
EXPLANATION OF IC's:

HD614042SD04 051-0757-01 Cassette Mechanism Controller

Description

The HD614042SD04 is a 4-bit 1-chip microcomputer for cassette mechanism 4F700 (930-0530-XX) control.

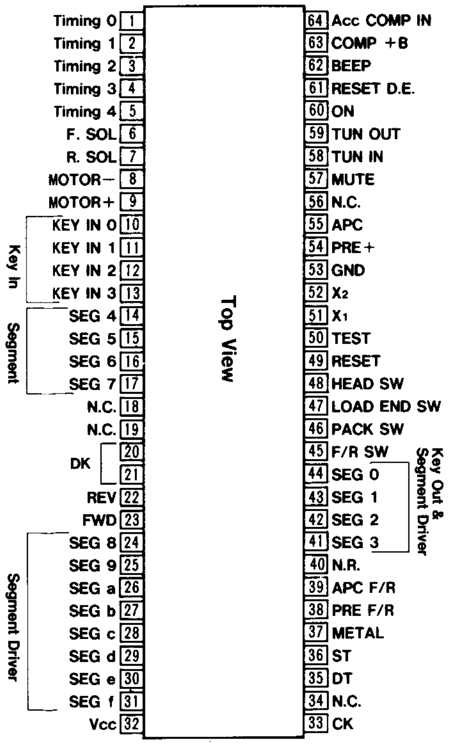
I Outward Form


58.0
64
33
17.0
1
32
1.78

II Absolute Maximum Ratings

Item		Symbol	Rating	Unit
Supply voltage		V_{CC}	$-0.3\sim+7.0$	V
Terminal voltage	Except high voltage terminal	V_{T1}	$-0.3\sim V_{CC}+0.3$	V
	High voltage terminal	V_{T2}	$V_{CC}-45\sim V_{CC}+0.3$	V
Input current (total)		ΣI_O	50	mA
Output current (total)		$-\Sigma I_O$	150	mA

III Terminal Connection


Timing 0 1
Timing 1 2
Timing 2 3
Timing 3 4
Timing 4 5
F. SOL 6
R. SOL 7
MOTOR− 8
MOTOR+ 9
KEY IN 0 10
KEY IN 1 11
KEY IN 2 12
KEY IN 3 13
Key In
SEG 4 14
SEG 5 15
SEG 6 16
SEG 7 17
Segment Driver
N.C. 18
N.C. 19
DK 20 21
REV 22
FWD 23
SEG 8 24
SEG 9 25
SEG a 26
SEG b 27
SEG c 28
SEG d 29
SEG e 30
SEG f 31
Segment Driver
Vcc 32
Top View
64 Acc COMP IN
63 COMP +B
62 BEEP
61 RESET D.E.
60 ON
59 TUN OUT
58 TUN IN
57 MUTE
56 N.C.
55 APC
54 PRE+
53 GND
52 X2
51 X1
50 TEST
49 RESET
48 HEAD SW
47 LOAD END SW
46 PACK SW
45 F/R SW
44 SEG 0
43 SEG 1
42 SEG 2
41 SEG 3
Key Out & Segment Driver
40 N.R.
39 APC F/R
38 PRE F/R
37 METAL
36 ST
35 DT
34 N.C.
33 CK

IV Terminal Function Table

Pin No.	Terminal Name	I/O	Function
1 ⁞ 5	Timing 0 ⁞ Timing 4	O	Timing pulse output terminal for display and key matrix.
6	F. SOL	O	"H" is output at SOL ON. Turn on at PLAY, FWD-REW and REV-FF.
7	R. SOL	O	"H" is output at SOL ON. Turn on at PLAY, FWD-FF and REV-REW. Turn on between 800mS at program change.
8	MOTOR−	O	"H" is output when EJECT. (Motor reverse rotation.)
9	MOTOR+	O	"H" is output when PLAY, FF, REW and LOADING mode. (Motor forward rotation.)
10 ⁞ 13	KEYIN 0 ⁞ KEYIN 3	I	Key matrix signal input terminal. (See Key Matrix Table)
14 ⁞ 17	SEG4 ⁞ SEG7	O	Segment drive pulse output terminal.
18, 19	N.C	−	Not in use. Connect earth.
20, 21	DK	−	Applicable for traffic information toward Europe.
22	REV	I	Detector input terminal. When REV-PLAY, REV-FF, FWD-REW, detects "L"→"H" rising. If 1800mS does not change at PLAY, detects TAPE END. If 500mS does not change at FF, REW, detects TAPE END.
23	FWD	I	Detector input terminal. When FWD-PLAY, FWD-FF, REV-REW, detects "L"→"H" rising. If 1800mS does not change at PLAY, detects TAPE END. If 500mS does not change at FF, REW, detects TAPE END.
24 25 26 ⁞ 31	SEG 8 SEG 9 SEG a ⁞ SEG f	O	Segment drive pulse output terminal.
32	Vcc	−	Power supply terminal.
33	CK	O	See Pin No. 35 and 36.
34	N.C.	−	Not in use. Connect earth.
35 36	DT ST	O	Data is output to electronic-VR IC. Pulse is output at VOL, BAL, BASS, TREBLE, MUTE and APC (Fast-forwarding).
37	METAL	O	"L" is output when METAL ON.
38	PRE F/R	O	PRE IC FWD/REW switching. "L" is output at FWD. During BACK-PLAY of FF-APC, reverse output to mechanical operation is made.
39	APC F/R	O	"H" is output at PLAY. With the popping-up mode, control output is made for uniforming the detecting level in PLAY and FF.
40	N.R.	O	At time of DOLBY ON, "L" is output. "H" is output for preventing the erroneous operation for popping up at time of FF/REW.
41 ⁞ 44	SEG 3 ⁞ SEG 0	O	Key matrix signal output (See Key Matrix Table) and segment drive pulse output terminal.
45	F/R SW	I	"L" is input when FWD mode.
46	PACK SW	I	"H" input by EJECT END. Under Acc ON, when this SW shows PACK-IN, REMOTE is set ON for starting the loading.
47	LOAD END SW	I	"L" is input when LOAD-END.
48	HEAD SW	I	"L" is input when HEAD-replease.
49	RESET	I	Reset pulse is input when RESET.
50	TEST	−	Test terminal of the device.
51	X_1	I	This is a connection terminal for a ceramic resonator.
52	X_2	O	
53	GND	−	Ground.
54	PRE+	O	"H" is output when DECK ON.
55	APC	I	At time of existing tune, "L" is input.
56	N.C.	−	Not in use. Connect earth.
57	MUTE	O	"L" is output with MUTE ON. It is set ON at the timing without making sound from deck (time of mechanical operation).
58	TUN IN	I	"L" is input when TUNER ON.
59	TUN OUT	O	"H" is output at timing of setting the TUNER ON (STOP-time during tape-in with Acc ON).
60	ON	O	"H" is output at the timing of setting the power-AMP to ON.
61	RESET D.E.	O	Continuous pulse is output at normal operation of micro-computer.
62	BEEP	O	Pulse is output with timing for sounding the buzzer.
63	COMP +B	I	"L" is input when +B ON.
64	Acc COMP IN	I	"L" is input when Acc ON.

V Key Matrix Table

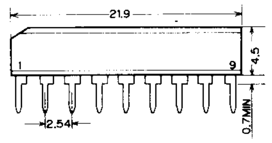
OUT \ IN	KEY IN 0 10Pin	KEY IN 1 11Pin	KEY IN 2 12Pin	KEY IN 3 13Pin
SEG 0 44Pin	PLAY	FF	METAL	UP
SEG 1 43Pin	R. MODE	BL. S	LOUD	MUTE
SEG 2 42Pin	REW	DOLBY	AUDIO MODE	DOWN
SEG 3 41Pin	−	−	−	STOP

VI Display Area Table

Timing \ SEG	SEG 4 14Pin	SEG 5 15Pin	SEG 6 16Pin	SEG 7 17Pin	SEG 0 44Pin	SEG 1 43Pin	SEG 2 42Pin	SEG 3 41Pin	SEG 8 24Pin	SEG 9 25Pin	SEG a 26Pin	SEG b 27Pin	SEG c 28Pin	SEG d 29Pin	SEG e 30Pin	SEG f 31Pin
Timing 0 1 Pin					BL.S	DOLBY	METAL	LOUD	VOL center RED	VOL center	VOL 1	VOL 2	VOL 3	VOL 4	VOL 5	VOL 6
Timing 1 2 Pin					▷ (FWD)	◁ (REV)					AUDIO MODE		VOL 7	VOL 8	VOL 9	VOL 10
Timing 2 3 Pin		PLAY RUN			R. MODE	APC	SCAN	REPEAT					VOL	BASS	TREB	BAL
Timing 3 4 Pin													L	R	MIN	MAX
Timing 4 5 Pin					Key Out											

LA2000C 051-0620-00 Music Interval Detection

Outward Form


21.9
1
9
4.5
2.54
0.7MIN

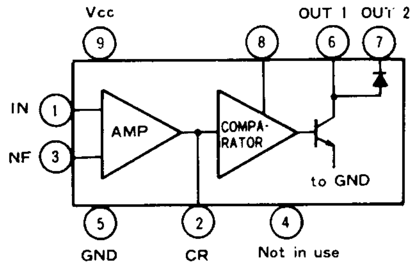
Description

LA2000C is an IC for detecting the tape-END, and the tune-interval, possible of popping-up of one tune before and after, from among tape-recorded musics.

Maximum Ratings (Ta=25°C)

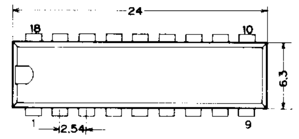
Item	Symbol	Rating	Unit
Supply voltage	V_{CC}	15	V
Power dissipation	P_D	540	mW

Block Diagram


Vcc
OUT 1
OUT 2
9
8
6
7
IN
1
NF
3
AMP
COMPA-RATOR
to GND
5
2
4
GND
CR
Not in use

M54562P 051-0565-00 / M54563P 051-0569-00 Darlington Transistor Array

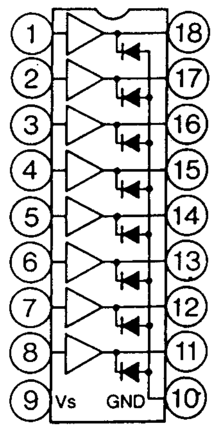
Outward Form


24
18
10
6.3
1
2.54
9

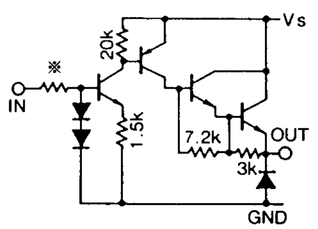
Absolute Maximum Ratings (Ta=−20∼+75°C)

Item		Symbol	Rating	Unit
Collector-emitter voltage		V_{CEO}	50	V
Supply voltage		V_S	50	V
Input voltage	M54562P	V_I	0∼30	V
	M54563P		0∼10	
Output current		I_O	−500	mA
Power dissipation		P_D	1.79	W

Block Diagram


1
2
3
4
5
6
7
8
9
Vs
GND
10
11
12
13
14
15
16
17
18

Equivalent Circuit


Vs
20k
※
IN
1.5k
7.2k
3k
OUT
GND

※ M54562P : 8.5k
M54563P : 3k

NJM2903D 051-0617-51 DUAL SINGLE-SUPPLY COMPARATOR

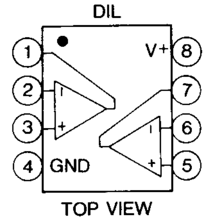
Absolute Maximum Ratings

Supply Voltage	V^+	36V
Power Dissipation	P_D	500mW

Electrical Characteristics

Input Offset Voltage	V_{IO}		± 7mV	(max.)
Input Offset Current	I_{IO}		±50nA	(max.)
Input Bias Current	I_{IB}		250nA	(max.)
Voltage Gain	A_v	(R_L=15kΩ)	200V/mV	(typ.)
Response Time	t_R	(R_L=5.1kΩ)	1.5μS	(typ.)

Block Diagram


DIL
1
2
3
4
GND
V+
8
7
6
5
TOP VIEW

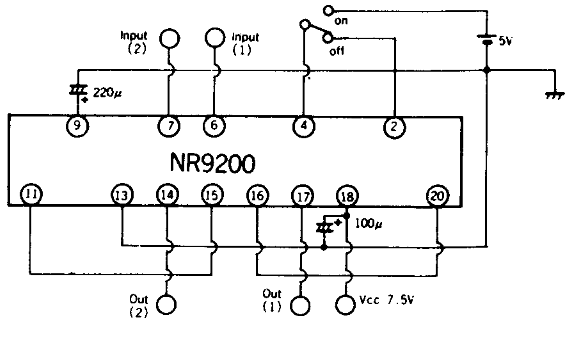
NR9200 051-0523-00 / NR9200A-1 051-0523-02 Dolby

Absolute Maximum Ratings

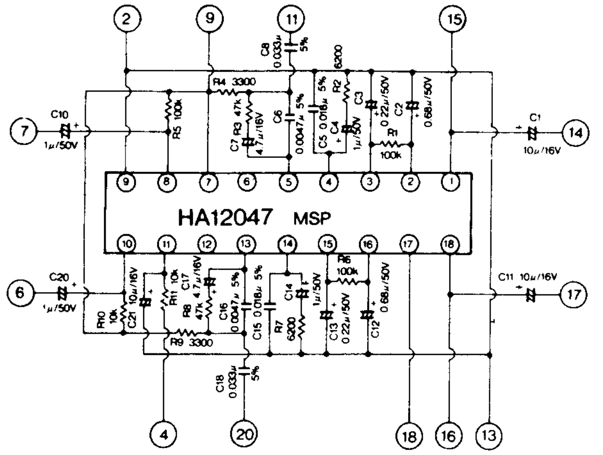
Supply Voltage	Vcc	15V
Power Dissipation	Pd	800mW

Electrical Characteristics (Ta=25°C, Vcc=7.5V, 300mV=0dB, f=400Hz, NR OFF $V_{14(17)}$=0dB)

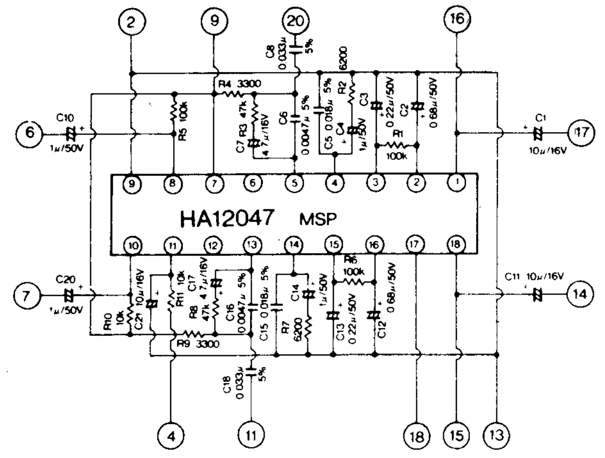
Item	Symbol	MIN	TYP	MAX	Unit	NR	Condition
Operation Voltage	Vope	6.0	7.5	12	V	—	
Voltage Gain	$G_{V(A)}$	20.5	22	23.5	dB	off	$20\log\frac{V_{17(14)}}{V_{6(7)}}$, f=400Hz, $V_{1(18)}$=0dB
Output Voltage	Vo max	14.5	16		dB	on	V⑭⑰, f=1kHz, THD=1%
Total Harmonic Distortion (DEC)	$THD_{(DEC)}$		0.05	0.3	%	on	f=1kHz, $V_{15(16)}$=0dB


Input (2)
Input (1)
on
off
5V
220μ
9
7
6
4
2
NR9200
11
13
14
15
16
17
18
20
100μ
Out (2)
Out (1)
Vcc 7.5V

Circuit Diagram


2
9
11
15
7
14
6
17
4
20
18
16
13
C10
C1
C8 0.033μ 5%
R4 3300
R5 100k
HA12047 MSP
C20
C11 10μ/16V
R9 3300
C18 0.033μ 5%

NR9200

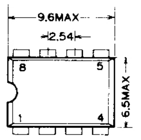

2
9
20
16
6
17
7
14
4
11
18
15
13
C10
C1
C8 0.033μ 5%
R4 3300
R5 100k
HA12047 MSP
C20
C11 10μ/16V
R9 3300
C18 0.033μ 5%

NR9200A-1

Note) Dolby and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
Noise Reduction System manufacture under license from Dolby Laboratories Licensing Corporation.

■TA7555P 051-0450-00 Timer IC

Outward Form


9.6MAX
2.54
8
5
1
4
6.5MAX

Outline

TA7555P is a highly stable IC for generating the exact time-delay and timing pulse.
In the operation for time-delay and single/stable multivibrator, its time can be exactly controlled by one resistor and capacitor attached on the outside.
At the unstable multivibrator, its frequency and duty cycle can be exactly controlled independently by 2 resistors and 1 capacitor.
The circuit of TA7555P can be reset and triggered by falling operation. Also, output-circuit can be given the source-electric current and sink of 200mA, thus TTL-circuit drive is possible.
Operation is made in the power voltage range 5~15V.

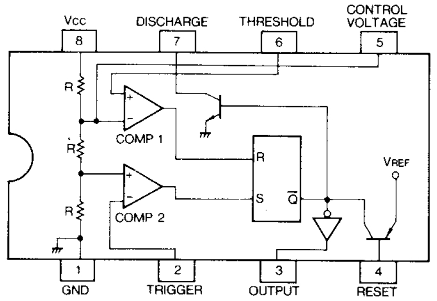
Maximum Ratings (Ta=25°C)

Item	Symbol	Rating	Unit
Supply voltage	V_{CC}	18	V
Power dissipation	P_D	600	mW

Electrical Characteristics (Ta=25°C, V_{CC}=5V~15V)

Item	Symbol	Condition	Rating	Unit
Control voltage	V_{CT}	V_{CC}=5V	3.33	V
		V_{CC}=15V	10	
Threshold voltage	V_{TH}		(2/3)V_{CC}	V
Trigger voltage	V_{TG}	V_{CC}=5V	1.67	V
		V_{CC}=15V	5	
Reset voltage	V_{RT}		0.7	V

Block Diagram


Vcc
DISCHARGE
THRESHOLD
CONTROL VOLTAGE
8
7
6
5
R
COMP 1
COMP 2
R
S
Q̄
VREF
1
2
3
4
GND
TRIGGER
OUTPUT
RESET

■TC9188N 051-0782-00 Electronic Volume

Description

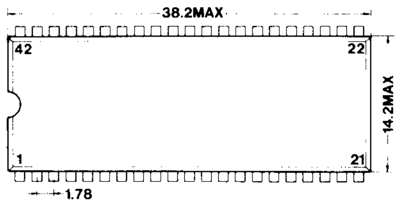
TC9188N is an electronic volume system to make one touch operation for switch and volume necessary for digital control of volume, balance, fader, bass, treble, and loudness.

Features

The selection and control of each volume can be optionally performed by the input of the specified serial data from the outside.

○Volume	0~−79dB (1dB/Step)
○Fader	FRONT, REAR
○Tone	each Bass, Treble ±12dB (2dB/Step)
○Loudness	There is a built-in control function for ON/OFF at less than −20dB.

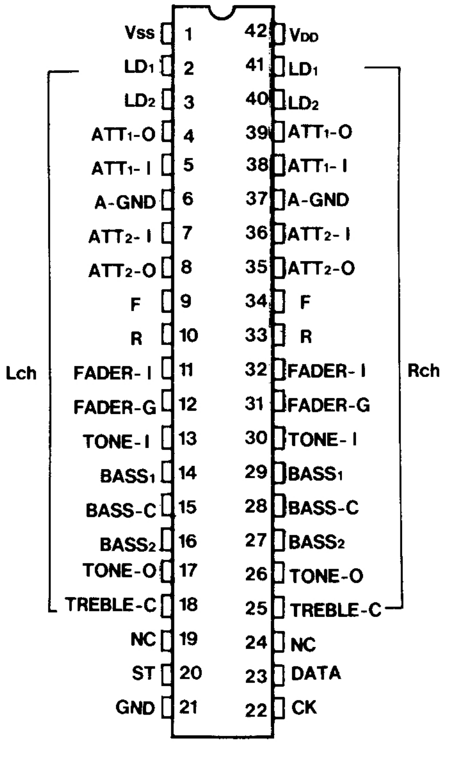
Outward Form


38.2MAX
42
22
1
21
14.2MAX
1.78

Maximum Ratings

Item	Symbol	Rating	Unit
Supply voltage	V_{DD}	14	V
Input voltage	V_{IN}	V_{SS}−0.3~V_{DD}+0.3	V
Power dissipation	P_D	800	mW

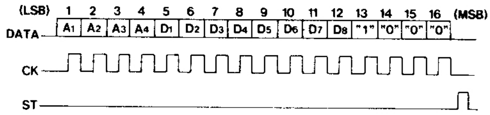
Terminal Connection


Vss 1
LD1 2
LD2 3
ATT1-O 4
ATT1-I 5
A-GND 6
ATT2-I 7
ATT2-O 8
F 9
R 10
FADER-I 11
FADER-G 12
TONE-I 13
BASS1 14
BASS-C 15
BASS2 16
TONE-O 17
TREBLE-C 18
NC 19
ST 20
GND 21
42 VDD
41 LD1
40 LD2
39 ATT1-O
38 ATT1-I
37 A-GND
36 ATT2-I
35 ATT2-O
34 F
33 R
32 FADER-I
31 FADER-G
30 TONE-I
29 BASS1
28 BASS-C
27 BASS2
26 TONE-O
25 TREBLE-C
24 NC
23 DATA
22 CK
Lch
Rch

Terminal Function Table

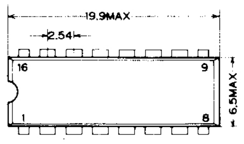
No.	Symbol	Function
2,41 3,40	LD_1 LD_2	To connect Loudness network.
4 39	(L) ATT_1-OUT (R)	10dB step attenuator output terminal. The signal added to ATT_1-IN can be attenuated up to 0~−70dB at 8 stages with 10dB-step.
5 38	(L) ATT_1-IN (R)	10dB step attenuator input terminal.
6,37	A-GND	Analog system ground.
7 36	(L) ATT_2-IN (R)	1dB step attenuator input terminal.
8 35	(L) ATT_2-OUT (R)	1dB step attenuator output terminal. The signal added to ATT_2-IN can be attenuated up to 0~−9dB at 10 stages with 1dB-step.
9 34	(L) F (R)	Front of Fader Control output terminal.
10 33	(L) R (R)	Rear of Fader Control output terminal.
11 32	(L) FADER-IN (R)	Fader Control input terminal.
12 31	(L) FADER-GND (R)	Attenuator ground terminal for Fader Control.
13 30	(L) TONE-IN (R)	Tone Control input terminal.
14 29	(L) $BASS_1$ (R)	Tap terminal for Tone Control Bass.
15 28	(L) BASS-COM (R)	Common terminal of volume for Tone Control Bass.
16 27	(L) $BASS_2$ (R)	Tap terminal for Tone Control Bass
17 26	(L) TONE-OUT (R)	Tone Control output terminal.
18 25	(L) TREBLE-COM (R)	Common terminal of volume for Tone Control Treble.
19,24	NC	Not in use. Open or ground.
20	ST	This is strobo input terminal for shifting to the taken-in control data. It is low-threshold value inverter input with CK, and DATA input.
22	CK	Clock input terminal for read the control data.
23	DATA	Control data input terminal.
1 21 42	V_{SS} GND V_{DD}	Power supply terminal.

Data Format


(LSB) 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 (MSB)
DATA
A1 A2 A3 A4 D1 D2 D3 D4 D5 D6 D7 D8 "1" "0" "0" "0"
CK
ST

■TD62004P 051-0447-00 Transistor Array

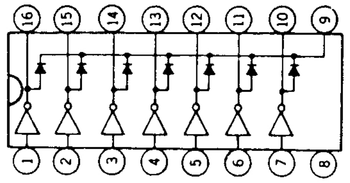
Outward Form


19.9MAX
2.54
16
9
1
8
6.5MAX

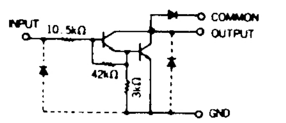
Maximum Ratings

Item	Symbol	Rating	Unit
Output Voltage	V_{CER}	−0.5~50	V
Collector—Emitter Sustaining Voltage	$V_{CE(SUS)}$	35	V
Collector Current	I_C	500	mA
Input Voltage	V_{IN}	−0.5~30	V
Thermal Resistance (TYP.)	Rth	0.125	°C/mW
GND Terminal Current	I_{GND}	2.3	A
Clamping Diode Forward Current	I_F clamp	350	mA
Power Dissipation	P_D	1.0	W

Terminal Connection

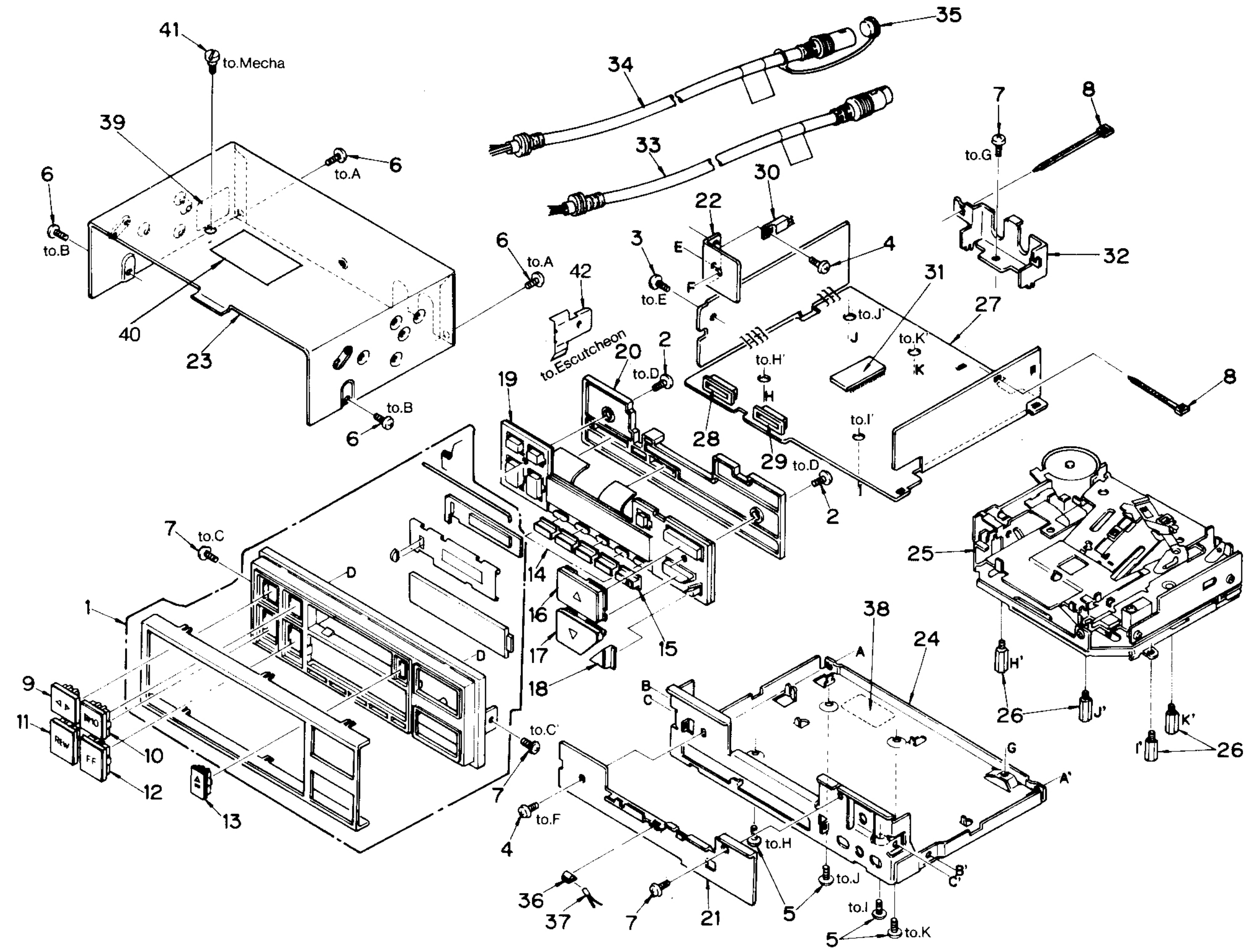

16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8

Equivalent Circuit (Unit)


INPUT
10.5kΩ
42kΩ
3kΩ
COMMON
OUTPUT
GND

■EXPLODED VIEW • PARTS LIST:

◎Main section



REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	940-0624A	Escutcheon ass'y	1
2	716-0648-00	Screw (2x5)	2
3	714-2606-81	Machine screw (M2.6x6)	1
4	714-3006-81	Machine screw (M3x6)	2
5	714-3004-81	Machine screw (M3x4)	4
6	731-3006-89	Tap tight (M3x6)	4
7	731-3006-80	Tap tight (M3x6)	4
8	335-0833-01	Lead holder	2
9	382-0874-02	Button (◁▷)	1
10	382-0874-01	Button (R·MO)	1
11	382-0875-00	Button (REW)	1
12	382-0875-01	Button (FF)	1
13	382-0876-00	Button (⏏)	1
14	382-0880-00	Button	4
15	382-0880-02	Button (AUDIO)	1
16	382-1025-01	Button (△)	1
17	382-1026-01	Button (▽)	1
18	382-1027-01	Button (MUTE)	1
19	379-0097-00	Indicator	1
20	335-2187-00	Indicator holder	1
21	330-8453-00	Shield plate	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
22	313-1243-00	Heat sink	1
23	310-1234-03	Upper case	1
24	311-1196-00	Lower cover	1
25	930-0530-06	Tape mechanism	1
26	716-0695-00	Screw	4
27	099-7682-00	P.W.B	1
28	074-0731-20	Outlet socket (20P)	1
29	074-0731-18	Outlet socket (18P)	1
30	103-1266-00	Transistor (2SD1266)	1
31	051-0757-01	IC (HD614042SD04)	1
32	330-8312-00	Lead holder	1
33	852-8609-00	Extension lead	1
34	852-9252-00	Extension lead	1
35	335-2105-00	Connector	1
36	345-3335-04	P.L cap	1
37	017-0345-13	Pilot lamp	1
38	286-5850-00	Set plate	1
39	285-1257-00	Guide label (8mm MAX)	1
40	285-1000-00	Guide label (LOCK)	1
41	716-0706-00	Lock screw	1
42	330-8297-00	Bracket	1

■PARTS LIST:

◎Electrical section

◎MAIN P.W.B

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
D_2	001-0333-30	Diode (MA2082A)	1
$D_{3\sim9.12\sim15.20}$	001-0343-00	Diode (1SS131)	12
$D_{16.17}$	001-0360-00	Diode (S5566B)	2
$D_{1.11}$	001-0423-22	Diode (MA4075)	2
D_{10}	001-0423-24	Diode (MA4091)	1
$VR_{101.201}$	012-3939-06	Variable resistor	2
$IC_{5.6.7.8.11}$	051-0285-51	IC (NJM4558S)	5
IC_{14}	051-0352-00	IC (TA78L005AP)	1
IC_{10}	051-0403-01	IC (TD6308AP)	1
$IC_{17.18.19}$	051-0447-00	IC (TD62004P)	3
IC_{13}	051-0450-00	IC (TA7555P)	1
IC_2	051-0523-01	IC (NR9200A)	1
IC_1	051-0539-00	IC (TA7405)	1
$IC_{15.16}$	051-0569-00	IC (M54563P)	2
IC_{12}	051-0617-51	IC (NJM2903D)	1
IC_3	051-0620-00	IC (LA2000S)	1
IC_9	051-0757-01	IC (HD614042SD04)	1
IC_4	051-0782-00	IC (TC9188N)	1
X_{401}	060-0071-00	Buzzer	1
X_{402}	060-0109-00	Ceramic resonator	1
$Q_{3.8}$	100-0881-00	Transistor (2SA881-PQR)	2
Q_{29}	100-0937-00	Transistor (2SA937-QRS)	1
Q_{25}	100-1048-00	Transistor (2SA1048)	1
$Q_{6.7}$	102-1652-00	Transistor (2SC1652-PQR)	2
$Q_{21.26.27.28}$	102-2458-00	Transistor (2SC2458-Y,GR,BL)	4
$Q_{23.24}$	102-2673-17	Transistor (2SC2673Q)	2
$Q_{1.2.31.32}$	102-3400-00	Transistor (2SC3400)	4
Q_{10}	103-1266-00	Transistor (2SD1266-PQR)	1
$Q^{4.5.9\sim18.20.22}_{30.33.34}$	125-2001-00	Transistor (DTC124F)	17
R_{402}	111-1011-81	Film resistor (½W100Ω)	1
R_{322}	111-1021-81	Film resistor (½W1kΩ)	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
$R_{353.354}$	111-8201-81	Film resistor (½W82Ω)	2
R_{307}	114-5601-11	Film resistor (1W56Ω) OM	1
$C^{101.102.201.202}_{329}$	173-1022-10	Polyester capacitor (0.001μF) S	5
$C^{103.203.311.327}_{328.330}$	173-1032-10	Polyester capacitor (0.01μF) S	6
$C_{332.335.337}$	173-1042-10	Polyester capacitor (0.1μF) S	3
$C_{110.210}$	173-1522-10	Polyester capacitor (0.0015μF) S	2
$C_{117.217}$	173-2222-10	Polyester capacitor (0.0022μF) S	2
C_{309}	173-2232-10	Polyester capacitor (0.022μF) S	1
$C_{114.214}$	173-2722-10	Polyester capacitor (0.0027μF) S	2
$C_{115.215.318}$	173-4732-10	Polyester capacitor (0.047μF) S	3
$C_{111.211}$	173-5632-10	Polyester capacitor (0.056μF) S	2
$C^{116.118.216.218}_{312.313}$	174-3300-13	Ceramic capacitor (33pF) TC	6
C_{331}	179-1073-21	Electrolytic capacitor (10V100μF) S	1
C_{315}	179-1083-22	Electrolytic capacitor (10V1000μF) S	1
$C_{304.305}$	179-2273-23	Electrolytic capacitor (10V220μF) S	2
C_{308}	182-1043-62	Electrolytic capacitor (50V0.1μF) SS	1
$C_{109.112.307}$	182-1053-62	Electrolytic capacitor (50V1μF) SS	3
$C^{120.220.301.316}_{326.333.336}$	182-1063-32	Electrolytic capacitor (16V10μF) SS	7
$C_{107.108.207.219}$	182-2253-62	Electrolytic capacitor (50V2.2μF) SS	4
$C_{113.119}$	182-2253-63	Electrolytic capacitor (50V2.2μF) SS	2
C_{302}	182-2263-22	Electrolytic capacitor (10V22μF) SS	1
C_{334}	182-3363-22	Electrolytic capacitor (10V33μF) SS	1
C_{306}	182-4743-62	Electrolytic capacitor (50V0.47μF) SS	1
$C_{104.204}$	182-4763-22	Electrolytic capacitor (10V47μF) SS	2
$C_{105.205.303.317}$	182-4753-52	Electrolytic capacitor (35V4.7μF) SS	4
C_{338}	182-4763-32	Electrolytic capacitor (16V47μF) SS	1
$C_{209.212}$	183-1053-62	Electrolytic capacitor (50V1μF) USS	2
$C^{106.206.310.314}_{319.320.322.325}$	183-1063-32	Electrolytic capacitor (16V10μF) USS	8
$C_{208.213}$	183-2253-62	Electrolytic capacitor (50V2.2μF) USS	2
C_{323}	183-2263-32	Electrolytic capacitor (16V22μF) USS	1
$C_{321.324}$	183-4763-32	Electrolytic capacitor (16V47μF) USS	2

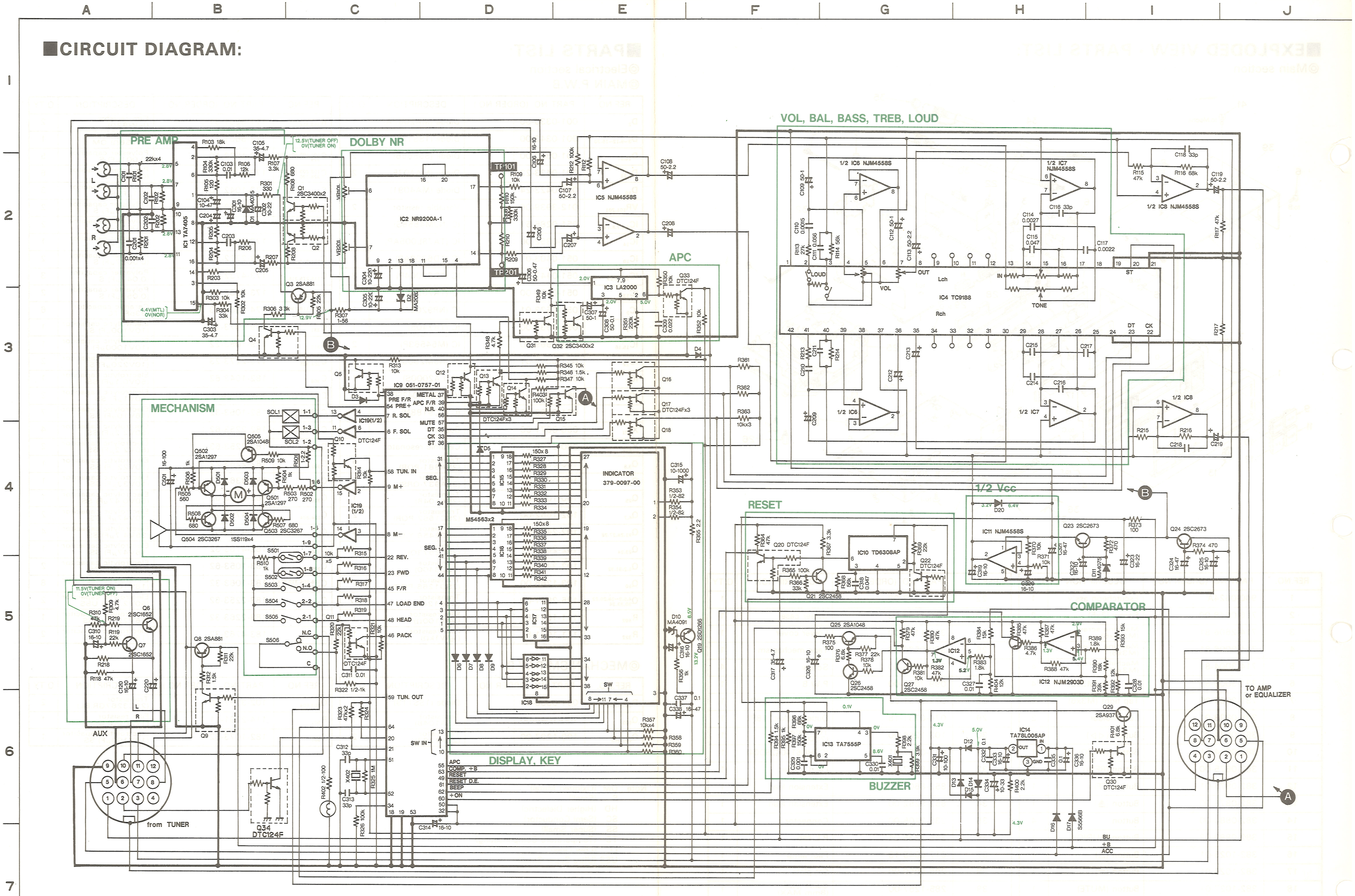
◎MECHANISM P.W.B

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
$D_{501\sim504}$	001-0330-00	Diode (1SS119)	4
Q_{505}	100-1048-00	Transistor (2SA1048)	1
$Q_{501.502}$	100-1297-00	Transistor (2SA1297)	2

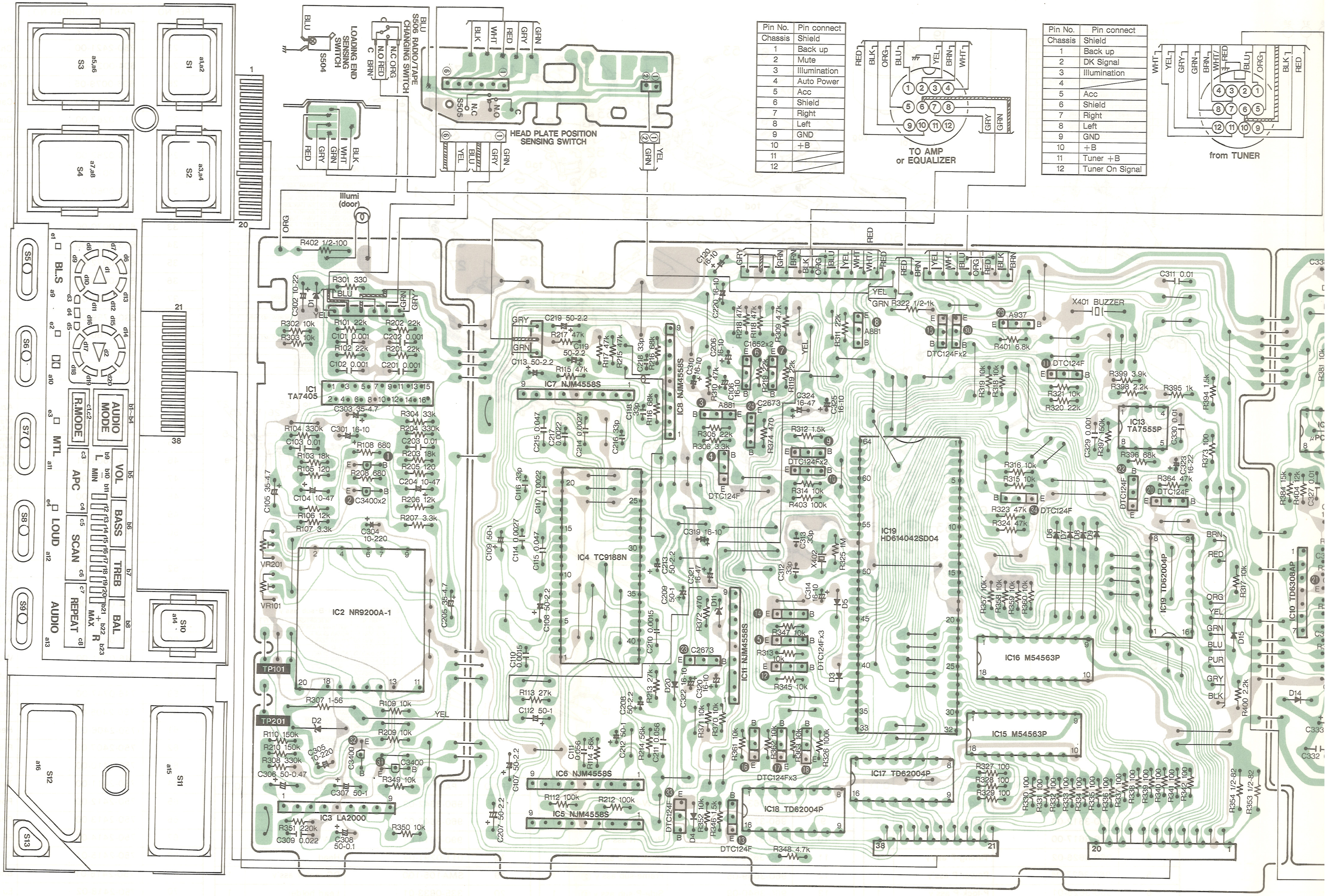
REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
$Q_{503.504}$	102-3267-50	Transistor (2SC3267GR,BL)	2
R_{501}	114-2291-11	Film resistor (1W2.2Ω) OM	1
C_{501}	182-1073-32	Electrolytic capacitor (16V100μF) SS	1

Note :		
	OM	(Oxidized Metal)
	S	(Small)
	HD	(Higher Dielectric)
	SC	(Semi-Conductor)
	SS	(Super Small)
	TC	(Temperature-Compensating)
	LL	(Low Leak)
	USS	(Ultra Super Small)

■CIRCUIT DIAGRAM:


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7
PRE AMP
IC1 TA7405
DOLBY NR
IC2 NR9200A-1
TP101
TP201
IC5 NJM4558S
APC
IC3 LA2000
2SC3400x2
Q33 DTC124F
VOL, BAL, BASS, TREB, LOUD
1/2 IC6 NJM4558S
1/2 IC7 NJM4558S
1/2 IC8 NJM4558S
IC4 TC9188
LOUD
VOL
TONE
Lch
Rch
MECHANISM
SOL1
SOL2
IC19(1/2)
DTC124F
Q502 2SA1297
Q505 2SA1048
Q504 2SC3267
1SS119x4
IC9 051-0757-01
METAL
PRE F/R
APC F/R
N.R.
R. SOL
F. SOL
MUTE
DT
CK
ST
TUN. IN
M+
M−
REV.
FWD
F/R
LOAD END
HEAD
PACK
TUN. OUT
SEG.
SW IN
APC
COMP. +B
RESET
RESET D.E.
BEEP
+ON
IC15
IC16
M54563x2
IC17
IC18
INDICATOR
379-0097-00
SW
DISPLAY, KEY
D10 MA4091
Q19 2SD1266
1/2 Vcc
IC11 NJM4558S
Q23 2SC2673
Q24 2SC2673
RESET
Q20 DTC124F
IC10 TD6308AP
Q21 2SC2458
Q22 DTC124F
COMPARATOR
Q25 2SA1048
IC12 NJM2903D
Q26 2SC2458
Q27 2SC2458
IC13 TA7555P
BUZZER
IC14 TA78L005AP
Q29 2SA937
Q30 DTC124F
TO AMP
or EQUALIZER
AUX
L
R
Q6 2SC1652
Q7 2SC1652
Q8 2SA881
Q9
11.5V(TUNER ON)
0V(TUNER OFF)
12.5V(TUNER OFF)
0V(TUNER ON)
4.4V(MTL)
0V(NOR)
from TUNER
Q34
DTC124F
BU
+B
ACC
D16
D17 S5566B

■PRINTED WIRING BOARD:

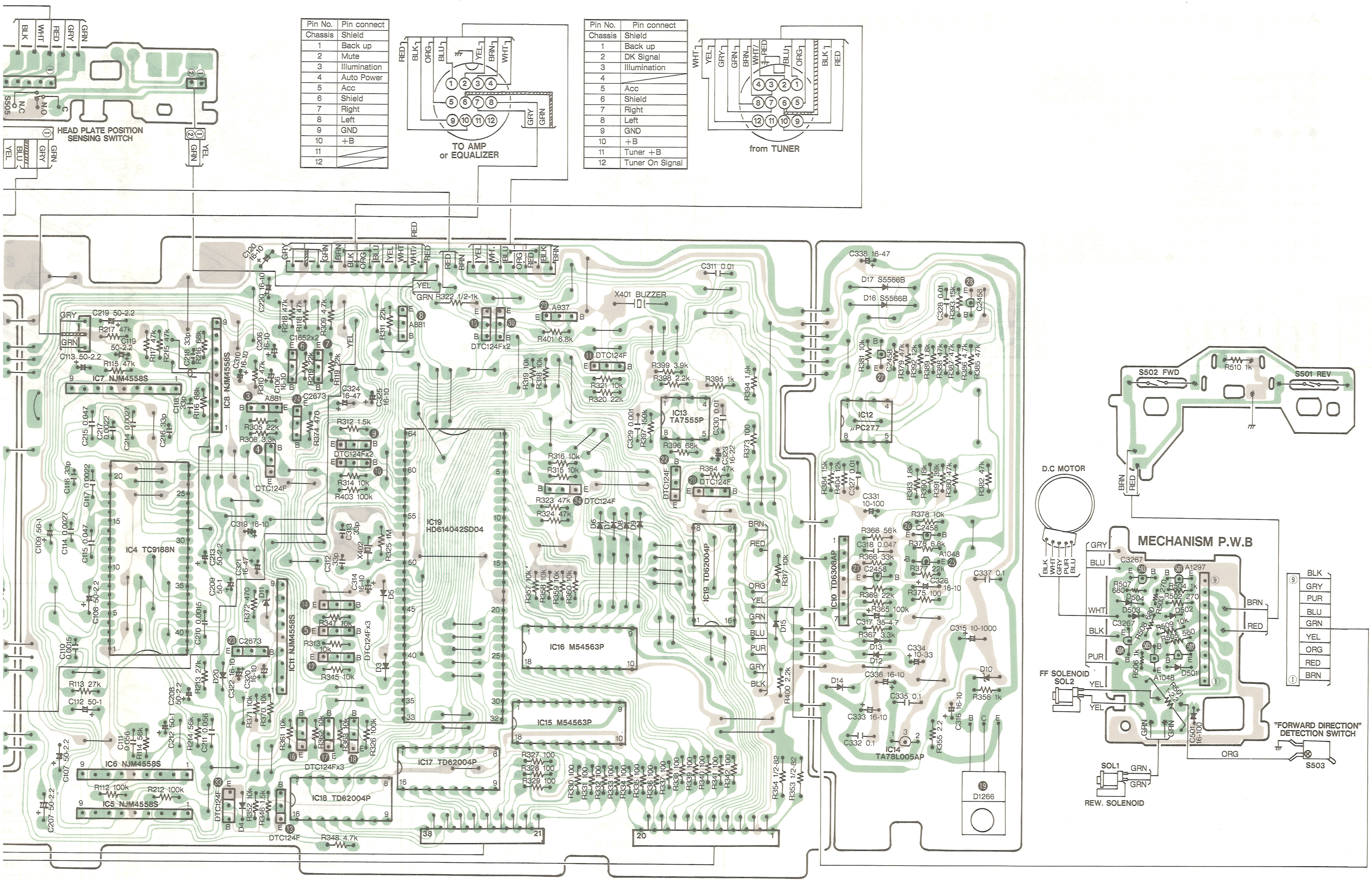

S505 RADIO/TAPE CHANGING SWITCH
LOADING END SENSING SWITCH
S504
HEAD PLATE POSITION SENSING SWITCH
TO AMP or EQUALIZER
from TUNER
Illumi (door)
IC1 TA7405
IC2 NR9200A-1
IC3 LA2000
IC4 TC9188N
IC5 NJM4558S
IC6 NJM4558S
IC7 NJM4558S
IC8 NJM4558S
IC10 TD6308AP
IC11 NJM4558S
IC13 TA7555P
IC15 M54563P
IC16 M54563P
IC17 TD62004P
IC18 TD62004P
IC19 HD614042SD04
IC19 TD62004P
X401 BUZZER
TP101
TP201
VR101
VR201
BL.S
AUDIO MODE
R.MODE
MTL
APC
LOUD
SCAN
REPEAT
AUDIO
VOL
BASS
TREB
BAL
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13

Pin No.	Pin connect
Chassis	Shield
1	Back up
2	Mute
3	Illumination
4	Auto Power
5	Acc
6	Shield
7	Right
8	Left
9	GND
10	+B
11	
12	

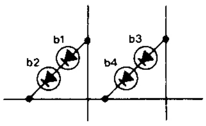
Pin No.	Pin connect
Chassis	Shield
1	Back up
2	DK Signal
3	Illumination
4	
5	Acc
6	Shield
7	Right
8	Left
9	GND
10	+B
11	Tuner +B
12	Tuner On Signal

Pin No.	Pin connect
Chassis	Shield
1	Back up
2	Mute
3	Illumination
4	Auto Power
5	Acc
6	Shield
7	Right
8	Left
9	GND
10	+B
11	
12	

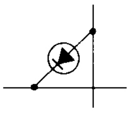
Pin No.	Pin connect
Chassis	Shield
1	Back up
2	DK Signal
3	Illumination
4	
5	Acc
6	Shield
7	Right
8	Left
9	GND
10	+B
11	Tuner +B
12	Tuner On Signal


HEAD PLATE POSITION SENSING SWITCH
S505
N.C
N.O
C
BLK
WHT
RED
GRY
GRN
YEL
BLU
TO AMP or EQUALIZER
from TUNER
RED
BLK
ORG
BLU
YEL
BRN
WHT
GRY
GRN
X401 BUZZER
IC4 TC9188N
IC5 NJM4558S
IC6 NJM4558S
IC7 NJM4558S
IC8 NJM4558S
IC11 NJM4558S
IC19 HD614042SD04
IC13 TA7555P
IC12 μPC277
IC10 TD6308AP
IC19 TD62004P
IC16 M54563P
IC15 M54563P
IC17 TD62004P
IC18 TD62004P
IC14 TA78L005AP
D1266
D17 S5566B
D16 S5566B
A937
A881
DTC124F
DTC124Fx2
DTC124Fx3
C2673
C2458
A1048
D.C MOTOR
MECHANISM P.W.B
S502 FWD
S501 REV
R510 1k
C3267
A1297
FF SOLENOID SOL2
SOL1
REW. SOLENOID
"FORWARD DIRECTION" DETECTION SWITCH
S503
BLK
GRY
PUR
BLU
GRN
YEL
ORG
RED
BRN

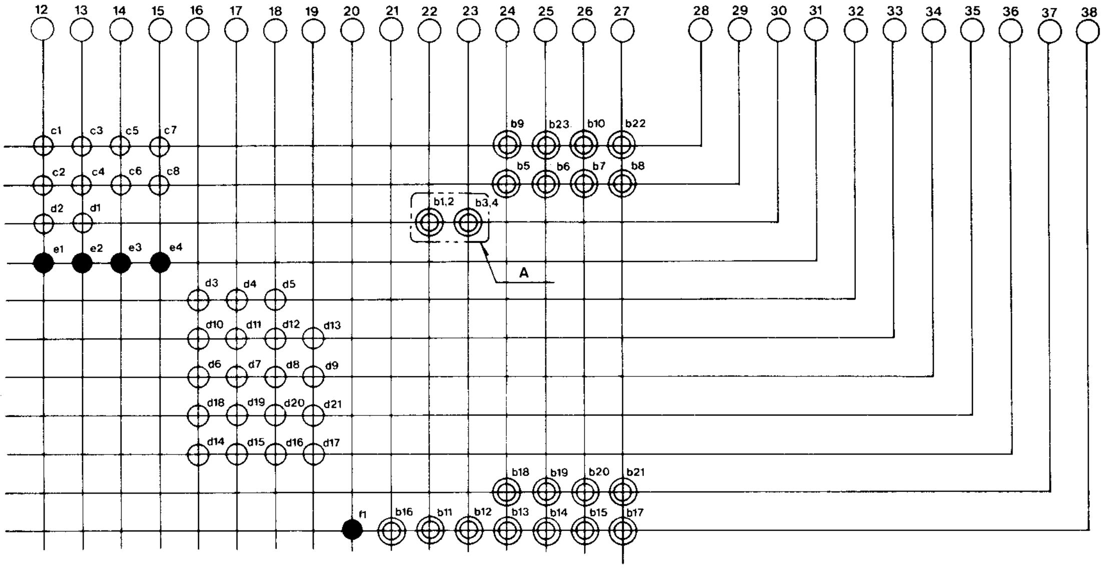
■INDICATOR: 379-0097-00



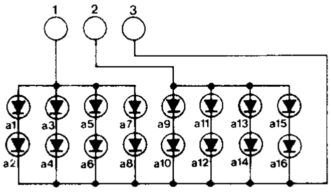
DETAIL A

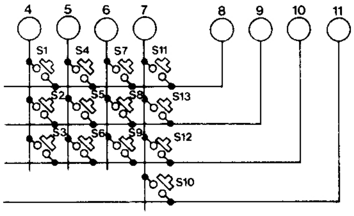


OTHER


12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
c1
c3
c5
c7
b9
b23
b10
b22
c2
c4
c6
c8
b5
b6
b7
b8
d2
d1
b1,2
b3,4
e1
e2
e3
e4
A
d3
d4
d5
d10
d11
d12
d13
d6
d7
d8
d9
d18
d19
d20
d21
d14
d15
d16
d17
b18
b19
b20
b21
f1
b16
b11
b12
b13
b14
b15
b17

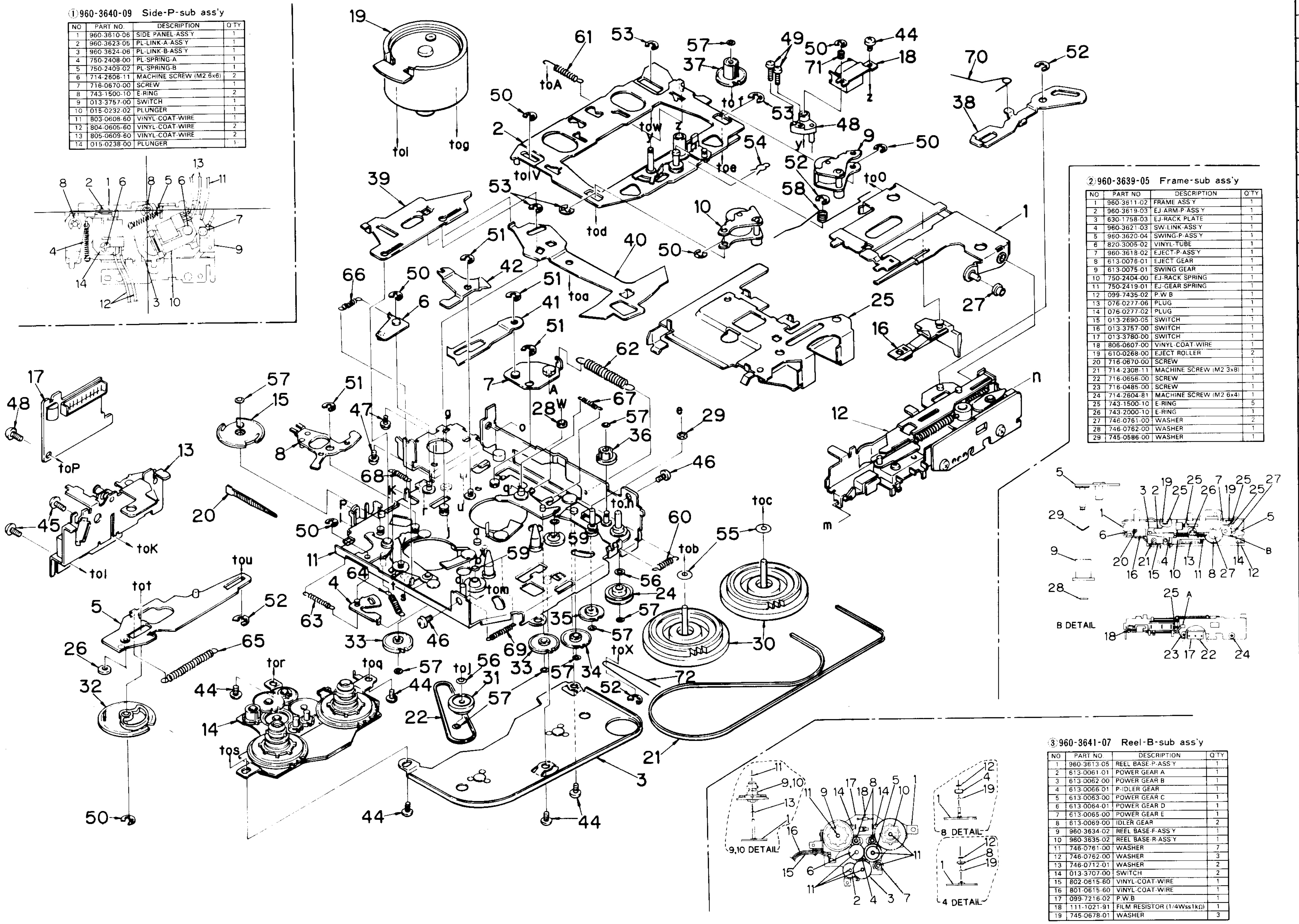
LED Color	Q'TY
○ GREEN	29
◎ AMBER	39
● RED	5


1
2
3
a1
a3
a5
a7
a9
a11
a13
a15
a2
a4
a6
a8
a10
a12
a14
a16


4
5
6
7
8
9
10
11
S1
S4
S7
S11
S2
S5
S8
S13
S3
S6
S9
S12
S10

■EXPLODED VIEW • PARTS LIST:

◎Tape mechanism section



①960-3640-09 Side-P-sub ass'y

NO	PART NO.	DESCRIPTION	Q'TY
1	960-3610-06	SIDE PANEL-ASS'Y	1
2	960-3623-05	PL-LINK-A-ASS'Y	1
3	960-3624-06	PL-LINK-B-ASS'Y	1
4	750-2408-00	PL-SPRING-A	1
5	750-2409-02	PL-SPRING-B	1
6	714-2606-11	MACHINE SCREW (M2.6x6)	2
7	716-0670-00	SCREW	1
8	743-1500-10	E-RING	2
9	013-3757-00	SWITCH	1
10	015-0232-02	PLUNGER	1
11	803-0608-60	VINYL-COAT-WIRE	1
12	804-0605-60	VINYL-COAT-WIRE	2
13	805-0609-60	VINYL-COAT-WIRE	2
14	015-0238-00	PLUNGER	1

②960-3639-05 Frame-sub ass'y

NO	PART NO	DESCRIPTION	Q'TY
1	960-3611-02	FRAME ASS'Y	1
2	960-3619-03	EJ-ARM-P-ASS'Y	1
3	630-1758-03	EJ-RACK PLATE	1
4	960-3621-03	SW-LINK-ASS'Y	1
5	960-3620-04	SWING-P-ASS'Y	1
6	820-3005-02	VINYL-TUBE	1
7	960-3618-02	EJECT-P-ASS'Y	1
8	613-0076-01	EJECT GEAR	1
9	613-0075-01	SWING GEAR	1
10	750-2404-00	EJ-RACK SPRING	1
11	750-2419-01	EJ-GEAR SPRING	1
12	099-7435-02	P.W B	1
13	076-0277-06	PLUG	1
14	076-0277-02	PLUG	1
15	013-2690-05	SWITCH	1
16	013-3757-00	SWITCH	1
17	013-3780-00	SWITCH	1
18	806-0607-00	VINYL-COAT-WIRE	1
19	610-0268-00	EJECT ROLLER	2
20	716-0670-00	SCREW	1
21	714-2308-11	MACHINE SCREW (M2 3x8)	1
22	716-0656-00	SCREW	1
23	716-0485-00	SCREW	1
24	714-2604-81	MACHINE SCREW (M2 6x4)	1
25	743-1500-10	E-RING	5
26	743-2000-10	E-RING	1
27	746-0761-00	WASHER	2
28	746-0762-00	WASHER	1
29	745-0586-00	WASHER	1

③960-3641-07 Reel-B-sub ass'y

NO	PART NO.	DESCRIPTION	Q'TY
1	960-3613-05	REEL BASE-P-ASS'Y	1
2	613-0061-01	POWER GEAR A	1
3	613-0062-00	POWER GEAR B	1
4	613-0066-01	P-IDLER GEAR	1
5	613-0063-00	POWER GEAR C	1
6	613-0064-01	POWER GEAR D	1
7	613-0065-00	POWER GEAR E	1
8	613-0069-00	IDLER GEAR	2
9	960-3634-02	REEL BASE-F-ASS'Y	1
10	960-3635-02	REEL BASE-R-ASS'Y	1
11	746-0761-00	WASHER	7
12	746-0762-00	WASHER	3
13	746-0712-01	WASHER	2
14	013-3707-00	SWITCH	2
15	802-0615-60	VINYL-COAT-WIRE	1
16	801-0615-60	VINYL-COAT-WIRE	1
17	099-7216-02	P.W.B	1
18	111-1021-91	FILM RESISTOR (1/4Wss1kΩ)	1
19	745-0678-01	WASHER	3

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
1	960-3609-04	Guide arm ass'y	1
2	960-3612-04	Head plate ass'y	1
3	960-3617-00	Flywheel-P ass'y	1
4	960-3626-02	Timing-P ass'y	1
5	960-3627-04	Power-P ass'y	1
6	960-3628-01	P-lock-P ass'y	1
7	960-3631-03	Power link ass'y	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
8	960-3632-02	REW-link ass'y	1
9	960-3738-00	Roller-F ass'y	1
10	960-3739-00	Roller-R ass'y	1
11	960-3638-05	Deck plate ass'y	1
12	960-3639-05	Frame-sub ass'y ②	1
13	960-3640-09	Side-P-sub ass'y ①	1
14	960-3641-07	Reel-B-sub ass'y ③	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
15	960-3642-03	CH-gear ass'y	1
16	960-3643-02	Pack-ST ass'y	1
17	990-0614-01	P.W.B ass'y	1
18	011-0291-04	Head	1
19	SMA-105-100	DC motor ass'y	1
20	335-0833-01	Lead holder	1
21	602-0091-01	Belt-A	1

REF.NO.	PART NO. (ORDER NO.)	DESCRIPTION	Q'TY
22	602-0092-02	Belt-B	1
23	750-2421-00	Change-A spring	1
24	604-0029-01	Tension pulley	1
25	606-0079-05	Pack guide	1
26	610-0266-00	Cam roller	1
27	610-0267-00	Guide roller	1
28	610-0281-00	Head-P-roller	1
29	610-0282-00	H-P-roller B	1
30	611-0072-02	Flywheel	2
31	613-0060-01	Pulley gear	1
32	613-0067-04	Cam gear	1
33	613-0070-00	FF-gear	2
34	613-0071-00	Loading gear-A	1
35	613-0072-00	Loading gear-B	1
36	613-0073-00	Loading gear-C	1
37	613-0074-00	Loading gear-D	1
38	630-1759-03	Eject arm	1
39	630-1760-02	Change plate	1
40	630-1761-00	Change arm	1
41	630-1762-02	Head lock plate	1
42	630-1763-01	FF-link	1
43	631-0461-01	Azimuth link	1
44	714-2003-81	Machine screw (M2x3)	6
45	714-2603-81	Machine screw (M2 6x3)	2
46	714-2604-81	Machine screw (M2 6x4)	2
47	716-0347-00	Screw (MOTOR)	2
48	716-0485-00	Screw (P W B)	1
49	716-0654-01	Screw (AZIMUTH)	2
50	743-1500-10	E-ring	7
51	743-2000-10	E-ring	4
52	743-2500-10	E-ring	4
53	744-0031-10	E-ring	4
54	744-0028-00	Snap retainer	1
55	745-0646-00	Washer (FLYWHEEL)	2
56	746-0624-00	Washer	2
57	746-0761-00	Washer	9
58	750-2422-03	Roller spring	1
59	746-0747-00	Washer (BEARING)	2
60	750-2405-02	Loading spring	1
61	750-2406-03	Head-P-spring	1
62	750-2407-03	P-link spring	1
63	750-2410-00	G-lock spring	1
64	750-2411-00	Timing spring	1
65	750-2412-00	Power-P-spring	1
66	750-2413-00	P-lock spring	1
67	750-2414-02	FF-spring	1
68	750-2415-01	REW-spring	1
69	750-2416-01	Brake spring	1
70	750-2418-02	EJ-arm spring-B	1
71	750-2420-00	Azimuth spring	1